Monograph 17

Australian Government
Australian Transport Safety Bureau

Cycle safety

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Cycle safety: a national perspective

Cycling is an important form of transport and recreation for many Australians. It is accessible to a wide range of people and has significant health and environmental benefits for the community.[1]

This monograph provides a statistical overview of the number of cyclists killed or seriously injured on the public road system Australia-wide and a discussion of the available national activity data. It does not include data on cyclists killed and seriously injured in areas outside the public road system.

Key facts

- On average, 35 cyclists are killed and around 2500 are seriously injured on the public road system each year.
- The number of cyclists killed has declined from 142 in 1950 to 26 in 2003.
- Cyclists account for around 2 per cent of road deaths and about 11 per cent of seriously injured each year.
- Cyclists aged 16 years and under account for the greatest proportion (almost half) of those seriously injured.
- Over 1 million cycles were sold in Australia in the 2002–03 financial year.
- In 2003, cycling was the fourth most popular physical activity among people aged 15 years and above.

Cycle helmets

Australia was the first country to introduce compulsory cycle helmet legislation in the early 1990s. While the legislation continues to be a contentious issue among some members of the community, there is clear evidence that helmets provide protective benefits in the event of a crash. An ATSB study, which reviewed numerous epidemiological studies published during the period 1987 to 1998, found 'overwhelming evidence in support of helmets for preventing head injury and fatal injury.'[2]

- Around 62 per cent of children aged between five and 14 cycled at least once in the year to April 2003.
- There are no data available which reliably measure cycle use at a national level, making it difficult to compare the safety of cyclists over time or relative to other road users.
- Australian Bureau of Statistics data from the 1996 and 2001 censuses indicate there was a small increase in cycling activity over this time period among people riding to work.
- The overall community benefits gained from regular cycling are likely to outweigh the loss of life through cycling accidents.

Table 1: Number of cyclists killed and seriously injured, Australia, 1999 to 2003

Year	Deaths	Seriously injured
1999	40	-
2000	31	2599
2001	46	2389
2002	34	-
2003	26	-

"-" data unavailable. There is currently a two year lag in the collection of serious injury data.

Australian Transport Safety Bureau
PO Box 967,
Civic Square ACT 2608
Australia
1800 621 372
www.atsb.gov.au

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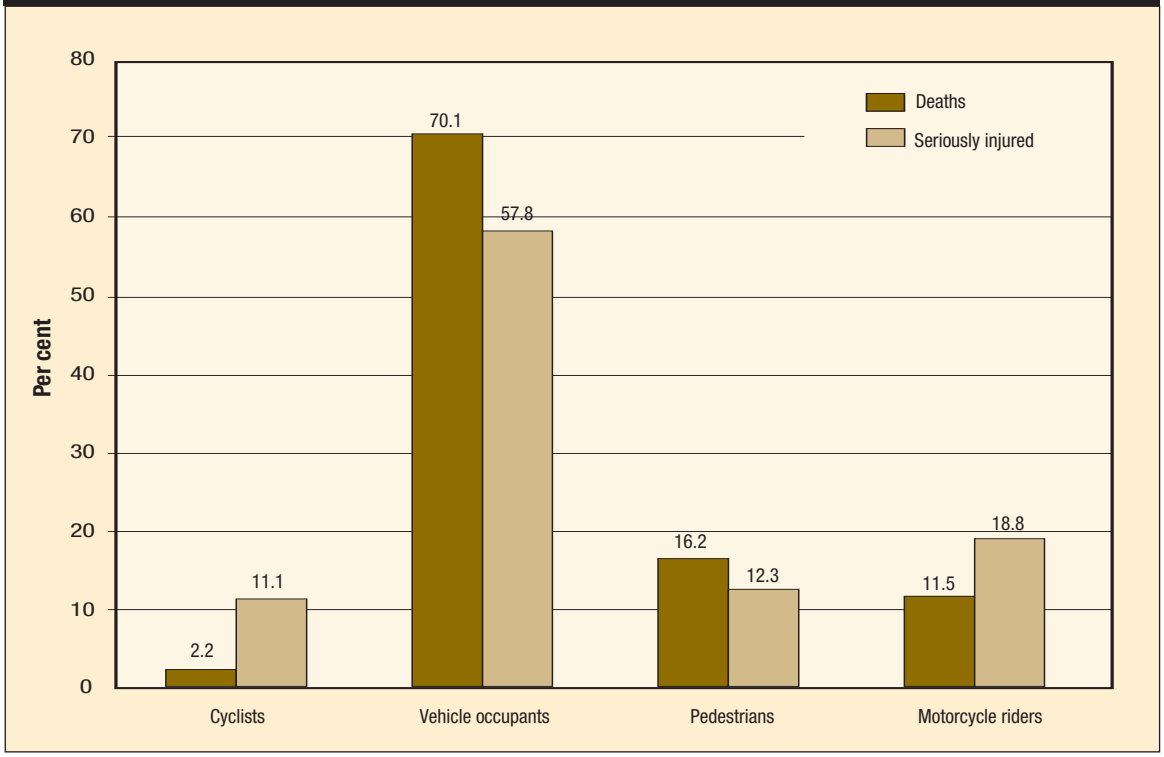
Figure 1: Percentage of road users killed or seriously injured, Australia, 2000 and 2001



Cyclists killed and seriously injured

An average of 35 cyclists were killed and around 2500 seriously injured each year between 1999 and 2003 (Table 1).

The number of cyclists killed is relatively low compared with other road user groups. Cyclists account for between 1.6 and 2.6 per cent of all road deaths each year.

Cyclists have a higher representation among people seriously injured than killed (Figure 1). They accounted for 2.2 per cent of road deaths between 2000 and 2001 compared with 11.1 per cent of seriously injured. While there are more than seven times the number of pedestrians killed than cyclists each year, the number of seriously injured cyclists and pedestrians is similar.

Focusing solely on cyclist deaths under-estimates the magnitude of cycle trauma. There are considerable benefits to the community in reducing the number of serious injuries, given the costs of on-going disability.

Trends in cyclist deaths

The number of cyclists killed has decreased substantially since 1950 (Figure 2). There were 142 cycle deaths in 1950 compared with 26 in 2003, an 82 per cent decrease.

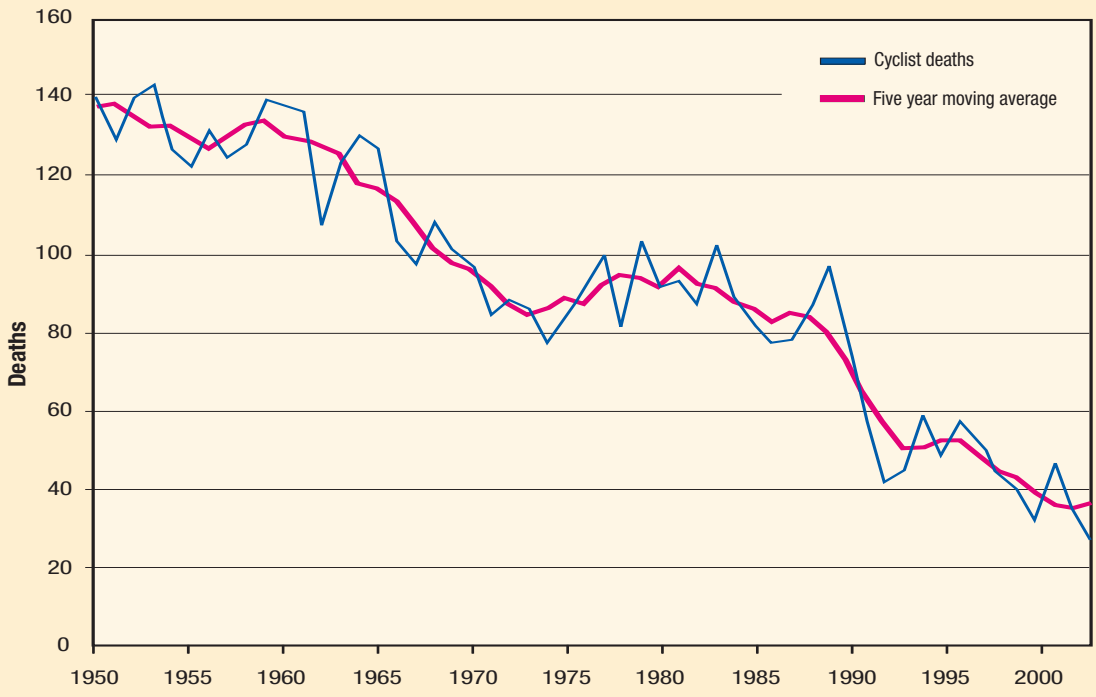
Historical serious injury data are not available to calculate trends; however, the ATSB has started collection of serious injury data and will be able to monitor trends as more data become available.

The demographics of cyclists seriously injured in 2000 and 2001

Around 46 per cent of cyclists seriously injured were aged between 0 and 16 years in 2000 and 2001. The proportion is relatively high compared with other road user groups. Over the same period, eight per cent of vehicle occupants and 24 per cent of pedestrians were aged 0 to 16 years (Figure 3).

The high proportion of children seriously injured as cyclists is probably due in part to

Figure 2: Number of cyclist deaths, Australia, 1950 to 2003



the number of children who cycle relative to the rest of the population. An Australian Bureau of Statistics survey indicates around 62 per cent of children aged between five and 14 cycled at least once in the year to April 2003[3]. There are no suitable data on the level of use of cycles by children compared with the rest of the population.

Children should not be discouraged from cycling as the health benefits provided by exercise are important, and cycling provides independent mobility for children. However, parents and educators should be aware that children do face risks in the road environment. Children need to be educated regarding the risks of cycling and young children should be supervised appropriately. Motorists should be prepared to encounter children cycling in the road environment.

The popularity of cycling

In order to accurately understand the trends in cyclist safety, a measure of cycling activity is required. Unfortunately, there are no data available at a national level which directly measure this. Most available cycling activity data are based on specific areas, such as Sydney or Melbourne, and are unlikely to be representative of national trends.

There are some data which provide an indication of the popularity of cycling. Cycle sales data indicate there were over 1 million cycles imported into Australia in the 2002–03 financial year[4]. A survey conducted by the Standing Committee on Recreation and Sport found cycling was the fourth most popular physical activity with 1,417,800 (9.4%) of people over 15 years old participating in cycling in 2003.[5]

Counts of journeys to work from the 1996 and 2001 censuses provide some indication of cycling activity over time. It should be noted that these data do not capture any information relating to recreational riding or any information relating to the length of journeys. It is also biased against those not in the work force, such as the young, the unemployed and seniors.

Table 2: Journeys to work on census day, Australia, 1996 and 2001[6]

	1996	2001	Per cent change
Journeys including at least one cycle leg	82,822	90,794	9.6
Total journeys	6,232,897	6,779,729	8.8
Cycle journeys as a percentage of all journeys	1.33	1.34	-

Table 2 shows that on census day 1996 there were 82,822 journeys to work completed which included at least one cycle leg, while in 2001 there were 90,794 – an increase of 9.6 per cent. Total journeys to work increased by 8.8 per cent, from 6,232,897 in 1996 to 6,779,729 in 2001.

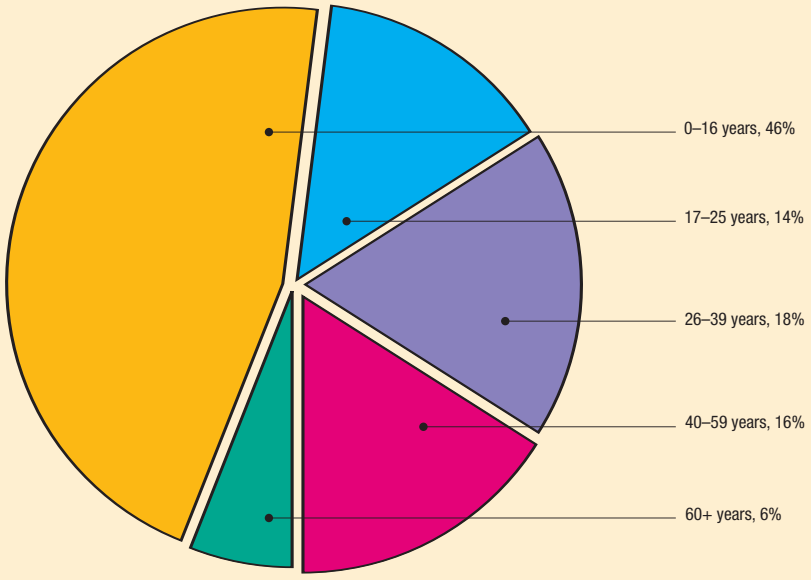
The number of journeys to work involving at least one cycle leg as a proportion of all journeys to work remained around the same. On census day, journeys to work involving at least one cycle leg made up 1.33 per cent of all journeys to work in 1996 and 1.34 per cent in 2001.

Cycle trauma in perspective

While the potential risks of cycling should not be ignored, they must be considered alongside the benefits of cycling.

Regular cycling is beneficial to health; in particular, cycling has been shown to reduce coronary heart disease, obesity and hypertension.[7] After reviewing a significant number of studies, the British Medical Association (BMA) concluded that the 'benefits gained from regular cycling are likely to outweigh the loss of life through cycling accidents'.[8]

Figure 3: Distribution of age groups for cyclists seriously injured, Australia, 2000 and 2001



While it would seem logical that encouraging cycling would lead to an increase in cyclist deaths and injuries, a recent study found this was not the case in a number of European and Californian towns and cities.[9] The study found that an increase in the number of cyclists in these towns and cities was associated with a reduction in the rate of deaths and serious injuries. This reduction may be due to increased levels of cycling lowering the number of trips made by cars, therefore reducing the chance of a collision as well as a greater familiarity of motorists with cyclists on the road.

Footnotes:

1 Austroads. (1999). *Australia Cycling 1999–2004 The National Strategy.* Sydney.

2 Attewell, R., Glase, K and McFadden, M. (2000). *Bicycle Helmets and Injury Prevention: A Formal Review.* Australian Transport Safety Bureau, Canberra.

3 Australian Bureau of Statistics. (2004). *Children's participation in cultural and leisure activities.* Canberra.

4 Australian Bicycle Council. (2003). *Good news stories*; August 2003. www.abc.dotars.gov.au/gnsaug2003.htm#2.

5 Standing Committee on Recreation and Sport. (2003). *Participation in Exercise, Recreation and Sport Survey 2003 Annual Report.* Canberra.

6 Data were compiled and provided to the ATSB by VicRoads based on Australian Bureau of Statistics 1996 and 2001 census data.

7 British Medical Association. (1997). *Road transport and health.* The Chameleon Press. London.

8 British Medical Association. (1992). *Cycling: Towards Health and Safety.* Oxford University Press, Oxford.

9 Jacobsen, P. (2003). *Safety in numbers: more walkers and bicyclists, safer walking and bicycling.* Injury Prevention, Vol. 9, pp. 205-209.

Share the road

Motorists and cyclists have the same rights and responsibilities on the road and must be prepared to interact with one another considerately.

Motorists

- Be patient and considerate when encountering cyclists on the roads.
- Give way to cyclists, just as you would to any other vehicle.
- Check for cyclists in your blind spots before turning.
- Give cyclists plenty of room – one metre is the minimum safe overtaking space between cars and cycles.
- Look for cyclists before opening car doors.

Cyclists

- When riding on the road you must obey all the road rules as they apply to motor vehicles (there are some exceptions to this in some states/territories).
- Ensure your intentions are clear to other road users by using clear hand signals when turning.
- Wear bright reflective clothing, ensure you have reflectors fitted and use bright lighting at night so that motorists can clearly see you.
- Wear a well fitting Australian Standards approved cycle helmet. Helmets have been repeatedly shown to have protective effects in the event of a crash.

Acknowledgements

Based on material from the NSW Roads and Traffic Authority, Transport SA, ACT Urban Services, Queensland Transport and VicRoads.

Notes on data

The serious injury data are sourced from the State/Territory hospitals and the assistance of the Health Departments in each jurisdiction in providing these data is gratefully acknowledged. Also acknowledged is the assistance of Dr Peter O'Connor in analysing the hospital data. The data comprise a count of the number of cyclists who were injured on the public road system, admitted to hospital with an injury, stayed overnight and subsequently recovered.

The data provide the most accurate picture of the number of seriously injured cyclists on the public road system available at a national level to date.

Traditionally, crashes occurring on the public road system are of most interest to those working in road safety. Some cycle crashes of interest, such as those occurring on a cycle path a significant distance away from the road-side, are unlikely to be captured in the data presented here.

Australian Bureau of Statistics data, which record all cycle-related deaths on- and off-road, show the vast majority of cyclist deaths occur on public roads and involve a motor vehicle. The majority of cycle deaths are therefore captured in the data reported in this paper.

Data are not currently available to make a similar comparison for the seriously injured; however, the distribution is unlikely to be the same. It is possible that many crashes involving a seriously injured cyclist do not involve a motor vehicle and occur away from the public road system. Therefore, the on–road injury data used in this report cannot be used as an estimate for the total number of seriously injured.